HASTINGS GROUND WATER CONTAMINATION

NEBRASKA

EPA ID# NED980862668

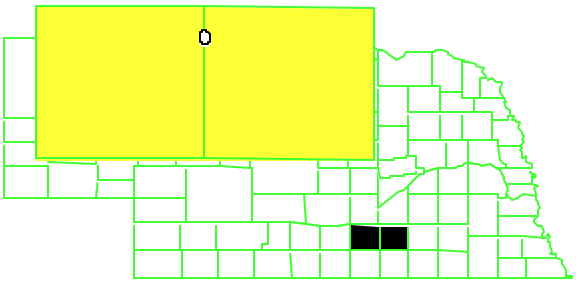
EPA Region 7

05/20/2003

City: City of Hastings

County: Adams County and Clay County

Other Names: Blayney Ammunition Depot, Blayney ExNaval Ammunition Base, Hastings Plume, Former Naval Ammunition Depot (NAD)



SITE DESCRIPTION

Approximately 23,000 people live in the City of Hastings. Like most communities, industries have expanded to areas outside of the city limits. Farms and pastures surround the urban area, and many private and public wells lie within a 3-mile radius of the city. Ground water is used to irrigate crops and water stock and provides water for home and business use. A nearby stream and lake are used for recreation. Concerns regarding volatile organic compounds (VOCs), including commercial grain fumigants in the Hastings city water supply, were investigated by the State of Nebraska in 1983. As a result, Hastings took two municipal supply wells out of service and placed other contaminated wells on a standby basis. Community Municipal Services, Inc. (CMS), a private water supply system formerly serving the areas east of Hastings, also took two of its three wells off-line due to pollution. Industrial solvent chemicals and commercial grain fumigants have migrated downward through the soils and are being carried by the ground water which flows generally to the east. Testing conducted by the City and the State assures that the water supplied to public water supply provided by the City is safe to drink.

The EPA designated the contaminated area generally outlined by the boundary of the ground water contamination as the Hastings Ground Water Contamination Site. The site includes properties within the central industrial area of the City of Hastings and properties including the former Naval Ammunition Depot (NAD) situated east of the city limits. The Hastings site was placed on the National Priorities List in 1986.

The site has been divided into seven subsites for investigative and remediation purposes based on geographic and constituent source area characteristics. The seven subsites are: Well No. 3, Colorado Avenue, Second Street, North Landfill, FAR-MAR-CO, South Landfill and the NAD. The Adams

County portion of the former NAD is known as the Hastings East Industrial Park. Cleanup of the former NAD is being addressed by the Army Corps of Engineers. The remaining subsites are being addressed by EPA and/or potentially responsible parties under various subsite-specific and "Area-Wide" actions.

Due to the size and complexity of the Hastings site, the following site description is organized into three geographic areas: Central Industrial Area; Commercial Area and closed city landfills; and Hastings East Industrial Park/former Naval Ammunition Depot. To facilitate the management of investigation and response actions, the EPA has identified "Operable Units" for some of the subsites.

Central Industrial Area:
This area encompasses commercial and industrial properties situated in the heart of Hastings, along the Burlington-Northern railroad right-of-way. The three subsites that make up this area are Well #3, Colorado Avenue, and Second Street. The Well #3 subsite, named for M-3, one of the city wells taken out of service, is contaminated with carbon tetrachloride (CC14), a grain fumigant. A second plume of contaminated ground water containing chlorinated industrial solvents trichloroethylene (TCE), trichloroethane (TCA), and perchloroethylene (PCE) was identified by EPA's investigation and is being managed by a local manufacturing firm. Three different industrial solvents have been detected in soils, at the Colorado subsite, the most significant being TCE. A vapor degreasing operation at the industrial facility located at 108 S. Colorado Avenue has been identified as the source of solvent releases to the environment during the 1960's and 1970's. Contamination at the Second Street subsite was identified during the 1987 to 1988 investigation of Colorado Avenue. Pollution from an old coal gas plant operation was detected in the soil at this subsite and in the downgradient ground water. Contaminants include benzene, polycyclic aromatic hydrocarbons (PAHs), and phenols.

Commercial Area and Closed City Landfills:
This area, situated at the eastern edge of Hastings, contains the North Landfill, FAR-MAR-CO and South Landfill subsites. Studies have revealed that the FAR-MAR-CO and North Landfill subsites are polluting downgradient wells with VOCs. The North Landfill originally was a local brickmaker's clay pit. Hastings operated it as a landfill in the 1960s to dispose of various municipal and industrial wastes. Operators of the FAR-MAR-CO subsite stored and handled agricultural products, mostly grains, for more than 30 years. VOCs, including toxic grain fumigants, have seeped into the soils and ground water. Grain dust explosions and spills from fumigant equipment on the subsite have contributed to the problem. While investigating soils at the FAR-MAR-CO subsite, the EPA discovered trichloroethane (TCA) contamination on a portion now owned by a different company. TCA is a solvent used to clean metals. This area became known as the TCA Contamination Area, and was cleaned up by the new owner in 1989. The South Landfill was operated by the City of Hastings during the 1960s and 1970s to dispose of municipal and industrial wastes. Sampling by EPA revealed the presence of TCE, PCE and vinyl chloride (VC) in the ground water. The subsite is bounded on the east by farmland. Also, the HEIP is located east of the South Landfill.

Hastings East Industrial Park (HEIP) /Former Naval Ammunition Depot (NAD):
The former NAD consisted of more than 72 square miles and was located 2 miles east of Hastings.

This facility extends into Clay County and includes properties that have been transferred to private parties and various government agencies. The 48,000-acre NAD was used for loading armaments until the early 1950s, and later for the demilling of armaments until it was decommissioned in the early 1960s. The U.S. Army Corps of Engineers is conducting studies at the site under the authorization of the Department of Defense (DOD). The major contaminants identified in the soils include volatile organic chemicals (VOCs), explosives and metals. Cleanup of the surface soil contamination on 2,600 acres of the HEIP has been completed by the Corps. Although contaminants that have been detected are generally consistent with the chemicals used by the Navy operations, the industries established in the HEIP since the 1960s may have generated some of the VOCs being detected.

Site Responsibility:

This site is being addressed through Federal, State, local, and potentially responsible parties' actions.

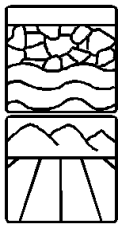
NPL LISTING HISTORY

Proposed Date: 10/15/1984

Final Date: 06/10/1986

Deleted Date:

THREATS AND CONTAMINANTS



Ground water and soils at the various subsites are contaminated with a wide range of VOCs and other organic compounds. The NAD site is contaminated with heavy metals and explosives in addition to VOCs, and the Second Street subsite also contains PAHs. Access to areas of contamination at the ground surface is limited and should not present a current risk to human health. The water provided by the City is safe for drinking. However, people and livestock may experience adverse health effects from drinking contaminated ground water in particular from domestic private wells located outside the city limits.

CLEANUP APPROACH

Response Action Status

To date, source control and ground water response actions have been initiated at Well No. 3, Colorado

Avenue, Second Street and FAR-MAR-CO subsites. Additionally, a clay cap was installed at the North Landfill as the subsite source control measure. In September, 2000, the EPA selected a remedy at the South Landfill, but no action has been implemented yet. The ground water response actions at the Second Street subsite is being implemented under two removal actions. The ground water actions at Well No. 3, FAR-MAR-CO and Second Street have been or are being designed to contain or monitor ground water concentrations that exceed maximum contaminant levels (MCLs) or, where there is no MCL for a constituent of concern (COC), the 1 in 1,000,000 cumulative excess cancer risk level. The FAR-MAR-CO ground water action may have the effect of controlling the North Landfill plume, however more work and information is needed to confirm this possibility. Two interim remedial actions being implemeted at Colorado Avenue are designed to contain and treat ground water concentrations that exceed 1 in 100,000 cumulative excess cancer risk.

The Well #3 Subsite is located in the Central Industrial area of Hastings. In 1989, EPA issued an Interim Action Record of Decision (ROD) selecting soil vapor extraction (SVE) as the technology to remediate the soils contaminated with carbon tetrachloride. EPA entered into a Superfund State Contract (SSC), with the State of Nebraska and began full-scale soil remediation in July, 1992. In July, 1993, EPA and the state determined that remediation of the soils was complete. The State of Nebraska and EPA entered into a second SSC to provide a cost share for the ground water remediation. A modification to the second SSC allowed the City of Hastings to enter into a Cooperative Agreement with EPA. The City of Hastings operated this ground water remediation system. The ground water cleanup for Plume 1 began in 1995, with the installation of an air stripper to treat ground water. EPA installed an irrigation system at a Hastings city park in the summer of 1998, for beneficial reuse of this extracted water (Operable Unit No. 13). Plume 2, was addressed by Dutton-Lainson under an Administrative Order on Consent (AOC) to conduct a soil vapor extraction (SVE) removal cleanup. These removal activities began in March, 1996. The AOC also required that Dutton-Lainson monitor ground water for the Plume 2 contaminants on a quantity basis quarterly. These actions were complete in 1999. In May, 2001, the EPA released its final ROD for the Well #3 Subsite selecting no further action for OUs #07, #17 (source control operable units) and #13 (Plume 1 ground water operable unit). For OU#18 (Plume 2), EPA selected the continuation of the Plume 1 remedy at the former decommissioned well until MCLs are attained and verified for the Plume 2 contaminants. The EPA has signed an agreement (Consent Decree) with Dutton-Lainson to perform this work. Discussions are ongoing between EPA and Dutton-Lainson to perform this work

The Colorado Avenue Subsite is located in the central portion of the City. In 1988, the EPA issued an Interim Action Record of Decision (ROD) in which it selected soil vapor extraction (SVE) technology to cleanup approximately 800,000 cubic yards of contaminated soil. On September 28, 1990, after failing to negotiate an agreement to implement the (SVE) technology with the Colorado Avenue PRPs, EPA issued a Unilateral Administrative Order (UAO) to Dravo Corporation and Desco Corporation, the subsite PRPs, to construct and operate the SVE system. This UAO was subsequently amended on January 26, 1995, to add Eric Inc. The SVE system began operation in July, 1996. In 1991, the EPA issued an Interim Action ROD to address the ground water contamination. The EPA issued a second UAO in 1993, requiring the PRPs to implement the ground water interim actions. The 1991 ROD was amended in 1998, to allow the PRP's to perform the interim action utilizing newer technologies including

air stripping and in-well-aeration (IWA). In 1999, the Phase I and Phase II ground water treatment wells were installed. The Phase II treatment wells have been operating since December, 1999, and are constructed utilizing the IWA design. A Phase III IWA treatment system is currently being constructed. Additional work will be needed to fully address the Colorado Avenue plume, which has traveled beyong the area of the Phase III treatment system.

The Second Street Subsite is located at the eastern edge of downtown Hastings. The EPA completed an Action Memorandum (AM) for the Second Street subsite in 1995. The removal action defined by the AM was needed to remove benzene from soils and ground water within the subsite boundaries. The EPA began construction at the subsite in 1996. Both treatment systems began operation in January, 1997, and are currently being operated by the City. Contaminated vapors from the SVE and ground water air stripper are being destroyed using a catalytic oxidizer. The EPA initiated a second removal action at the Second Street subsite in September, 2000. An in-well aeration system was installed to remove benzene and other volatile contaminants from the ground water. The IWA system began operation in the summer of 2001. Areas of ground water contamination have been identified east of the locations of the two removal action treatment wells. The EPA is performing an RI/FS to determine what long term actions maybe necessary for the ground water. An interim remedial action for the ground water is anticipated to address the plume downgradient from the source area.

The North Landfill Subsite is located east of the City and north of Highway 6. The City operated a municipal/industrial landfill from 1962-1964. In 1991, EPA issued a ROD for an interim remedial action to addressed both source control and the ground water contamination. In October, 1992, the City and Dutton-Lainson entered into an Administrative Order on Consent (AOC) to perform the remedial design. The design for the source control operable unit was completed in 1996, and consisted of improving the landfill cap and restricting public access and future land use. In the fall of 1998, the PRPs begin construction of the landfill improvements. The landfill improvements were completed in the summer, 1999. The design process for the ground water operable unit was suspended by the EPA while the City and Dutton-Lainson participate in a removal action for the downgradient ground water operable unit at the FAR-MAR-CO Subsite. The ground water contamination at the FAR-MAR-CO Subsite has been commingled with ground water emanating from the North Landfill Subsite. Quarterly ground water monitoring has been conducted by the responsible parties and will be contained in a report due to EPA in December, 2002. This report will evaluate the performance of the FAR-MAR-CO system in capturing and containing the North Landfill plume. The responsible parties also conducted quarterly vadose zone monitoring for 8 quarters to determine if the landfill continues to be a source of VOCs to the aquifer. The results of this monitoring indicated that the landfill is not a major source of contamination. Additional ground water monitoring wells have been installed and monitored by the responsible parties, which indicate that a major source of the ground water contamination is from an upgradient source.

The FAR-MAR-CO Subsite is located east of the North Landfill Subsite. On September 30, 1988, EPA signed a ROD selecting soil vapor extraction (SVE) as the technology to address the source contamination. In September 1990, Farmland Industries, Inc., a former owner of the subsite, performed an SVE pilot study to verify the effectiveness of removing carbon tetrachloride and ethylene

dibromide (EDB) from the soils. During the operation of the SVE pilot, over 1,200 pounds of carbon tetrachloride and EDB were removed from the soils. In January, 1992, Farmland agreed to design a full-scale SVE system. In August, 1995, an Explanation of Significant Differences to the ROD was issued to extend the SVE operation as a measure to address the ground water contamination as the source. Farmland and the current owner of the subsite, Cooperative Producers, Inc., entered into a Consent Decree which requires that they perform source control using SVE. The Consent Decree was entered and Farmland began the full scale operation of the SVE system in July, 1997. The SVE attained remediation goals in May, 2000, and entered into the SVE-plus phase, which required the system to perform for an additional two year period, until May, 2002. Farmland will collect soil vapor samples in November, 2002, to determine if any rebounding of the contamination occurs. Site restoration activities are tentatively scheduled to begin in May, 2003. EPA entered into an Administration Order on Consent (AOC) with Morrision Enterprises in June, 1996, to perform a ground water removal action. Construction and installation of the ground water extraction system began in December,1996. Pumping of ground water to control the carbon tetrachloride and EDB plume began in July,1997, and continues. EPA anticipates that it will take 15 years to restore the aquifer to MCLs. Morrison will present a report documenting the first five years of operation for EPA's review and approval. EPA will evaluate the performance of the system based upon the information presented in this report. In 1987, during EPA's investigation of the carbon tetrachloride and EDB contamination at the subsite, a separate area of soil contaminated by 1,1,1-trichloroethane (TCA) was found at the subsite (Operable Unit No. 11). Pursuant to a December, 1989 AOC, HIPCO excavated approximately 43 cubic yards of soil and transported it to a permitted disposal facility. A ROD for the TCA Operable Unit was signed in September, 1990, in which no further action was determined necessary to address the TCA contamination.

The South Landfill Subsite is located in the southeast section of Hastings. During the 1960's and 1970's, municipal and industrial wastes were disposed at the landfill. EPA began field investigation in 1994, and confirmed the presence of industrial solvents in the landfill. EPA developed the Remedial Investigation report to document the investigation. The PRPs completed the FS under terms of an Administrative Order. The EPA completed a ROD for the subsite in September, 2000. The selected remedy for the South Landfill includes upgrading the landfill cap and monitoring natural attenuation for the ground water.

The Former Naval Ammunition Depot (NAD) is located in eastern Adam and western Clay Counties and consists of approximately 48,000 acres. The contaminants of concern are volatiles (VOCs), heavy metals, polynuclear aromatic hydrocarbons (PAHs) and explosives. The Corps of Engineers (COE) an agent for Department of Defense (DOD) has conducted or began the following cleanups. In 1995, the COE completed: a time-critical removal action to excavate two manholes, a catch basin, piping and contaminated soils, sludges and liquids for Operable Unit No. 8; and a full-scale pilot system, incorporating air sparging via horizontal and vertical wells (Operable Unit No. 14). The pilot was successful and is currently continuing as a removal action. Construction of these SVE systems began in October, 1996, for Buildings 104 and 135 areas to cleanup the soil contaminated with VOCs. The COE completed construction July, 1998, of a soil repository (Operated Unit No. 4). Major components of the construction include excavation of low-levels of contaminated soils and incineration

of excavated soils containing high levels of explosives and PAHs. SVE systems have been designed to address the contaminated soil at Building 130, South Disposal Area and Naval Yard Dump. The COE completed a draft remedial investigation report which addresses other areas of the NAD suspected to be contaminated and the contaminated ground water beneath the subsite.

Area-Wide Hastings Site activities have continued to support identification of a remedy for the City Subsites (i.e., the six non-NAD subsites). The EPA completed a Remedial Investigation (RI) report which addresses the area-wide ground water contamination for the City Subsites. The RI report included a risk assessment prepared by the Nebraska Department of Health to determine the risks associated with contamination in the aquifer underneath the City of Hastings. In 2000, the PRPs prepared the Area-Wide FS under the terms of an Administrative Order. The Area-Wide FS was needed to evaluate site-wide environmental conditions taking into account the completed and proposed remedial measures for the various City Subsites. The purpose of the FS was to integrate the information collected at each subsite into a comprehensive document and evaluate remedies designed to protect potential receptors from unacceptable risks posed by ground water. In 2001, the EPA, in consultation with the NDEQ, signed a ROD for an interim remedial action. The ROD provides for establishing an institutional control area (ICA), alternate water supply for effected users, well inventory and ground water monitoring program. The City has proceeded to implement components of this action, including establishing the ICA through a City Ordinance and conducting a review and testing of private wells in the area. EPA is in discussions with the Area-Wide PRP Group to facilitate an agreement for full scale implementation of the remedy. In July, 2002, the EPA completed its Second Five-Year Review Report for the entire Hastings Site. This report is on Region VII's web site under Five-Year Review Report.

Site Facts:

ENVIRONMENTAL PROGRESS

Due to the numerous cleanup actions and the number of contaminated areas and subsites at the Hastings Ground Water site, the status of cleanup activities varies. The ground water actions will be long-term. In general, however, the potential for exposure to hazardous substances in the ground water has been greatly reduced by closing down contaminated wells while further studies and cleanup activities are being planned and conducted. Further contamination of the ground water is being prevented by the EPA and other parties' efforts to clean up the sources of contamination. The EPA continues to monitor the quality of the ground water adjacent to the Hastings site, and informing property owners and businesses when contaminant levels exceed acceptable limits. The EPA, the NDEQ and the potentially responsible party group are applying the Superfund process to determine acceptable actions to manage contamination associated with the Hastings Site.

SITE REPOSITORY

Hastings Public Library,
Fourth and Denver Streets,
Hastings, Nebraska 68901

Central Community College Library,
E. U.S. Highway 6,
Hastings, NE 68901 contains some documents.

Superfund Records Center
901 N. 5th St.
Kansas City, KS 66101
Mail Stop SUPR
(913)551-4038

REGIONAL CONTACTS

SITE MANAGER:	Paul Doherty Diane Easely Darrrell Sommerhauser Victor Lyke
E-MAIL ADDRESS:	doherty.paul@epa.gov, easley.diane@epa.gov sommerhauser.darrell@epa.gov, lyke.victor@epa.gov.
PHONE NUMBER:	(913) 551-7711
COMMUNITY INVOLVEMENT COORDINATOR:	Beckie Himes
PHONE NUMBER:	913 551-7003
E-MAIL ADDRESS:	himes.beckie@epa.gov
STATE CONTACT:	Mike Felix
PHONE NUMBER:	402 471-3388

MISCELLANEOUS INFORMATION

STATE:	NE
	07S2
CONGRESSIONAL DISTRICT:	03
EPA ORGANIZATION:	SFD-SUPR/IANE

MODIFICATIONS

Created by:	Kenya Owens/PLMG/R7/USEPA/US	**Created Date:**	03/19/1998 11:10 AM
Last Modified by:	Jude Roach/SUPR/R7/USEPA/US	**Last Modified Date:**	05/20/2003 03:09 PM